PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of:	:	
Shahriar ALAM et al.	:	Atty. Dkt No.: MDHS-378A
Serial No.: **09/272,562**	:	Group Art Unit: 1771
Filed: March 19, 1999	:	Examiner: J. Guarriello
For: **SCREEN INK PRINTED FILM CARRIER AND**	:	
ELECTRICALLY MODULATED DEVICE USING	:	
SAME (As Amended)	:	

APPELLANT'S BRIEF ON APPEAL UNDER 37 C.F.R. §1.192

Honorable Commissioner of
Patents and Trademarks
Washington, D.C. 20231

Sir:

Appellants, within a five (5) month period from the February 21, 2001, filing date of the Notice of Appeal, and further to the Three Month Petition for an Extension of Time filed concurrently, herein file an Appeal Brief (in triplicate) drafted in accordance with the provisions of 37 C.F.R. § 1.192 (c) as follows:

I. REAL PARTY IN INTEREST

Appellants respectfully submit that the above-captioned application is assigned, in its entirety, to The Boeing Company, a company organized under the laws of United States.

II. RELATED APPEALS AND INTERFERENCES

Appellants state that, upon information and belief, they are not aware of any co-pending appeal or interference which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1-11 and 21-27 are pending. The application as originally filed included claims 1-15. Claims 12-15 were cancelled in response to a Restriction Requirement set forth in Paper No. 3. Claims 21-27 were added by way of a Preliminary Amendment (Paper No. 4) dated 08/16/2000. In response to the final Office Action (Paper No. 6) mailed 11/21/2000, no claims were added or amended. Thus, claims 1-11 and 21-27 are being appealed.

IV. STATUS OF AMENDMENTS

No claim amendments were presented in response to the Final Rejection. The Amendment (Paper No. 7) filed in response to the Final Office Action (Paper No. 6) proposed several amendments to the specification; the Advisory Action (Paper No. 8) indicated that the Amendment would be entered upon the filing of the instant Appeal.

V. SUMMARY OF THE INVENTION

The present invention relates to ink screen printing of electrical altering images onto thin adhesive film carriers that are flexible and capable of deformation out of the major plane of the carrier to conform to the exterior contour presented by flat or even complicated three-dimensional objects, upon which the film carrier can be affixed by using the intrinsic or latent (e.g., heat-activatable) tackiness of the carrier film material without the need to resort to extraneous adhesives. Resistive and conductive images can be deposited directly on the thin adhesive carrier film used in this invention in a desired pattern by screen printing so as to be tailored to meet desired electrical properties. See pg. 3, line 21, through pg. 4, line 2. Other advantages associated with this invention include the fact that the ink is cured simultaneous with the bonding of the screen ink patterned carrier film *per se* to a substrate, to thereby reduce the number of required process steps and, thus, the cost of such screen ink printing. See pg. 4, lines 15-20.

Fig. 1 depicts a screen printed thin film adhesive carrier 14 including a thin film adhesive carrier 10 upon which the screen printed ink 11 is deposited in a hexagonal pattern. See pg. 5, lines

18-20. Fig. 2 is a cross-sectional view of the screen printed thin film adhesive carrier 14 of Fig. 1. The thin film adhesive carrier 10 is a composite structure including a base fibrous layer 12 bearing a continuous surface film 13 of a thermosetting resin. It is also possible to employ a carrier devoid of a fibrous backing, although the continuous film will need to be thick enough to maintain its structural integrity during curing operations when the printed carrier 14 is united to a substrate. The screen printed thin film adhesive carrier 14 can be applied to a flat or three-dimensional substrate surface in a facile manner. See pg. 5, line 20, through pg. 6, line 1. Fig. 3 illustrates a screen printed thin film adhesive carrier 14 used as an R-card applied to a contoured part 15, which can be foam or other suitable material, as the substrate having a three-dimensional exterior geometry. See pg. 6, lines 1-5.

An important attribute of the screen printed film carrier 14 of this invention is that the unit 14 can be attached to a device substrate in an efficient manner where the screen printed pattern 11 and the continuous film 13 are co-cured during bonding of the unit 14 to the substrate. See pg. 6, lines 13-16.

To accomplish this, the carrier film 10 can comprise a textile layer, such as a woven layer, a knit layer, a scrim layer, or a nonwoven layer, of approximately 5 to 15 mils (about 125 to 380 μm) covered on one surface with a continuous surface layer 13 formed of a thermosetting resin, such as an epoxy compound, of a thickness of about 1 to 10 mils (about 25 to 250 μm). The screen printed film carrier 14 can have an overall density of about 0.05 to 0.1 lb/ft^3. Preferably, the epoxy resin used in the continuous surface layer 13 is pre-staged to the B-stage so that it has sufficient structural integrity to tolerate handling without undue flow or thinning when screen printed upon or when bonded to a substrate before full cure to the C-stage is effected. See pg. 6, line 18, through pg. 7, line 7.

The relative thicknesses of the fibrous backing 13 and the continuous surface layer 13 are preferably selected to be as thin as possible to save costs and increase the conformability of the unit 14 while ensuring sufficient thickness is provided to maintain structural integrity during handling, screen printing and bonding/curing. It also is preferred that the continuous surface layer 13 be a

thermosetting resin of sufficient thickness to provide a continuous robust bonding surface for the screen ink that will not thin, while allowing for some excess to flow into, partially impregnate, and anchor to the interstices of the fibrous layer 13. See pg. 7, lines 19-28.

The screen printed patterns 11 maintain their high resolution through curing in the inventive screen printed carrier film units. The screen printed patterns 11 also integrate with the adjoining continuous surface film 13 without loss of resolution. Additionally, the need for an extraneous adhesive between the screen ink pattern and the intended substrate is obviated in the present invention. The inventive screen printed carrier film is very flexible, yet robust, such that it can be conformed and bonded to many complex three-dimensional substrate geometries without difficulty. Also, only a relatively thin dielectric layer is required in the screen printed carrier film so as to reduce material costs and to provide advantageous electrical characteristics for electromagnetic applications. See pg. 12, lines 1-14.

VI. ISSUES

(1) A first issue is whether "adapted to" or "capable of", and the like claim language, concerning an intrinsic capability, function or structure of a recited feature, especially where it is made in reference to another claimed feature, is a positive limitation deserving patentable weight?

(2) A second issue is whether each of claims 1 and 8-11 is unpatentable under 35 U.S.C. § 102(b) in view of Callahan (U.S. Patent No. 5,364,705)?

(3) A third issue is whether claim 1 is unpatentable under 35 U.S.C. § 102(b) in view of Williams et al. (U.S. Patent No. 4,321,404)?

(4) A fourth issue is whether each of claims 1, 2 and 4is unpatentable under 35 U.S.C. § 102(b) in view of Kawai et al. (U.S. Patent No. 5,403,422)?

(5) A fifth issue is whether each of claims 3, 5-7, and 21-27 is unpatentable under 35 U.S.C. §103(a) over Kawai et al. (U.S. Patent No. 5,403,422) in view of Pittman et al. (U.S. Patent No. 5,102,727)?

(6) A sixth issue is whether each of claims 8-11 is unpatentable under 35 U.S.C. §103(a) over Kawai et al. (U.S. Patent No. 5,403,422) in view of Ruffoni (U.S. Patent No. 5,185,381) and Whyzmuzis (U.S. Patent No. 5,714,526)?

VII. GROUPING OF CLAIMS

Appellants hereby acknowledge that claims 1-11 and 21-27 stand or fall together.

VIII. ARGUMENTS

The final Office Action states that:

- Claims 1 and 8-11 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,364,705 to Callahan (Callahan '705);
- Claim 1 is rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,321,404 to Williams et al.;
- Claims 1, 2 and 4 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,403,422 to Kawai et al.;
- Claims 3, 5-7, and 21-27 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kawai et al. in view of U.S. Patent No. 5,102,727 to Pittman et al.; and
- Claims 8-11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kawai et al. in view of U.S. Patent No. 5,185,381 to Ruffoni and U.S. Patent No. 5,714,526 to Whyzmuzis.

THE CITED PRIOR ART

U.S. Patent No. 5,364,705 to Callahan teaches a resistive sheet with an electrically conductive ink layer and an electrically resistive ink layer on a substrate or a part of the sheet, (see abstract). Callahan teaches that the substrate can be polyester and can be cured, (column 2, lines 9-29; lines 60-65; column 5, lines 20-36). Callahan teaches the ink pattern can be polygons which can be changed in size, (column 3, lines 49-55). Conductive ink and magnetic particles are known.

U.S. Patent No. 4,321,404 to Williams et al. is drawn from non-analogous art.[1] The Final Office Action cites the '404 patent as disclosing coating compositions which can be used in providing substrates with a strongly adhering abhesive coating. Such substrates can be metal, plastics like polyester and others, (column 13, lines 3 8-45). Abhesive coatings can carry an image, like an ink pattern, (column 14, lines 5-8). Williams teaches the abhesive coated substrate can be imaged with a fused xerographic design, (column 13, lines 67-68; column 14, line 1). However, a careful reading of the '404 patent would permit one of ordinary skill in the art to conclude that this patent primarily teaches a mold release type material which permits a xerographic image to be deposited and subsequently removed by a clear sheet coated with an adhesive, e.g., transparent tape.

U.S. Patent No. 5,403,422 to Kawai et al. discloses a method for forming decorative plates used in, for example, in skinning buildings. The '422 patent is cited in the Final Office Action as teaching a base sheet, which is asserted to be similar to the screen ink printed film carrier, impregnated with a thermosetting resin which base sheet can be woven or nonwoven synthetic resin fiber, which is similar to the fibrous sublayer or textile layer, (column 4, lines 44-50)~ Kawai teaches

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The test for analogous or non-analogous art is set forth in In re Wood and Eversole, 599 F.2d 1032, 202 U.S.P.Q. 171 (CCPA 1979) as follows:

> In resolving the question of obviousness under 35 USC 103, we presume full knowledge by the inventor of all the prior art in the field of his endeavor. However, with regard to prior art outside the field of his endeavor, we only presume knowledge from those arts reasonably pertinent to the particular problem with which the inventor was involved. In re Antle, 58 CCPA 1382, 1387, 444 F.2d 1168, 1171-72, 170 U.S.P.Q. 285, 287-88 (1971). The rationale behind this rule precluding rejections based on combination of teachings of references from nonanalogous arts is the realization that an inventor could not possibly be aware of every teaching in every art. Thus, we attempt to more closely approximate the reality of the circumstances surrounding the making of an invention by only presuming knowledge by the inventor of prior art in the field of his endeavor and in analogous arts.
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> . . . .
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> The determination that a references is from a nonanalogous art is therefore twofold. First, we decide if the reference is within the field of the inventor's endeavor. If it is not, we proceed to determine whether the reference is reasonably pertinent to the particular problem with which the inventor was involved.

that a pattern layer, which is allegedly similar to the continuous surface layer of resin with ink, can be formed in a known printing manner using conventional ink, (column 3, lines 30-34). Kawai teaches the ink composition can be used for forming the pattern layer, which is allegedly similar to the continuous layer, (column 4, lines 28-30). In short, the interpretation of the '422 patent in the Final Office Action is said to possess features similar to those claimed.

U.S. Patent No. 5,102,727 to Pittman et al. teaches electrically conductive textile fabric, which is woven or nonwoven and is similar to scrims (which are woven fabrics), (column 2, lines 14-5 1). Pittman teaches that the amount of woven and knitted fabrics can be varied as in thickness (see abstract).

U.S. Patent No. 5,185,381 to Ruffoni teaches a foam absorber material impregnated with an ink which includes a resin carrier and conductive and/or magnetic material such as silver, copper, nickel, etc. (see abstract).

U.S. Patent No. 5,714,526 to Whyzmuzis is cited as teaching inks including pigments which may possess electrical or magnetic properties. The particular pigments cited as being of interest include ferrite yellow oxide, red iron oxides, ferric iron oxide brown and others, (column 6, lines 37-55).

PRELIMINARY DISCUSSION

Prior to discussing any of the anticipation or obviousness rejections of the pending claims, Appellants wish to present encompassing remarks regarding Issue (1), which issue is common to all applied rejections.

Independent claim 1 recites:

> A screen ink printed film carrier, comprising a thin film carrier layer supporting an ink pattern containing an electrically resistive or conductive material and a curable resin, wherein said thin film carrier layer comprises a curable adhesive material in contact with said ink pattern, and the curable adhesive material being **co-curable** with the curable resin. [Emphasis added.]

Page 3 of the final Office Action rejected claim 1 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,363,705 to Callahan (Callahan '705 or, simply, the '705 patent) in the following manner:

> "... Appellant's arguments regarding the new limitations of "curable adhesive material being co-curable with the curable resin" have been considered but this is not a positive limitation but only requires the ability to so perform since it is similar to "capable of" language and implication. This new limitation does not constitute a limitation in a patentable sense, In re Hutchinson, 69 U.S.P.Q. 138. Regarding the limitations of claims 10 and 11 with conductive ink and magnetic particles, '705 does describe "conductive ink layer" which generically encompasses the species of conductive ink and magnetic particles claimed. Claims lack novelty."

Similar arguments, i.e., that the express limitation regarding "co-curable" is somehow "undeserving" of patentable weight, are advanced throughout the final Office Action

As previously explained in the record, Callahan '705 only teach supports for the silk screened patterns which are either stiff plastics that are either not curable or no longer curable, such as kapton, polyester, or polyimide, or quartz glass or S-glass substrates on the other hand (see col. 5, lines 20-26; col. 2, lines 27-29).

The Final Office Action does not appear to disagree with Appellants' observation of record that Callahan '705 fails to teach a screen printed ink pattern as claimed as being supported by a thin film carrier layer comprises a curable adhesive material in contact with said ink pattern, in which the recited adhesive material of the thin film carrier layer is co-curable with the curable resin of the ink pattern. Nonetheless, the final Office Action disregards this recited difference from Callahan '705. Namely, the Examiner is understood to take the position that Appellants' claim limitation of "... *curable adhesive material being co-curable with the curable resin*" (emphasis added by underlining) is not a positive claim limitation and essentially is "capable of" type language, which is not accorded patentable weight. The Examiner relies on In re Hutchison, 69 U.S.P.Q. 138, as authority for his position in this regard.

Even assuming Hutchison is a relevant legal authority (a proposition which Appellants respectfully disagree with for reasons that will be explained below), Appellants first note that facts

critical to the Court's decision in Hutchison are not on all fours with the current situation. Namely, Hutchison concerns a statement *in an introductory clause or preamble* that an article is "adapted" for a specific intended or preferred use. In short, the Court in Hutchison denied patented weight to an intended use limitation in the preamble of the claims at issue there.

In contrast, the present claims concern the inherent or intrinsic properties of two components (i.e., the curable adhesive material and the curable resin are co-curable) of the claimed screen ink printed film carrier as recited ***in the body of the claim***. The "co-curable" language recited in the instant claims is not merely intended use or intended purpose language recited in a preamble, but instead constitutes **an actual structural and functional feature** of the invention as set forth in the body of the claims.

The fact that the language "co-curable" represents a positive claim feature in this regard is indicated by the attached listing (Appendix B) of 39 U.S. patents identified in the U.S. Patent and Trademark Office's searchable patent database (http:// www.uspto.gov)[2], all of which recite "co-curable" or its variant "cocurable" in at least one claim. Furthermore, a copy of U.S. Patent No. 6,127,447 (Appendix C), which includes a Claim 25 in which "co-curable" language is explicitly used to characterize a component of a radiation curable coating composition. Although the file histories of these 39 patents have not been reviewed *per se* to determine whether the "co-curable" language was afforded patentable weight or not, the widespread and historical usage of that language in claims before the U.S. Patent and Trademark Office at least suggests that the language has been given such dignity in examinations before the Patent Office in the past.

Consequently, even assuming the Hutchison case were relevant, a proposition which Appellants respectfully disagree with, it does not represent controlling authority in the current application at issue, as it is factually distinguishable from the facts of the present application.

Moreover, based on Appellants' own legal research, the Hutchison case has been overruled, at least implicitly, for all intents and purposes by way of the more recent case authority of In re

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[2/] That same database lists **150,000+** patents that include the term "capable of" in at least one of its claims.

Venezia, 189 U.S.P.Q. 149 (CCPA 1976). A courtesy copy of the Venezia case authority is also appended to the instant Brief (Appendix D).

In the Venezia case, the CCPA (including a panel of judges including Chief Judge Markey and Judge Rich) reversed the U.S. Patent and Trademark Office Board of Appeals. In Venezia, the Board of Appeals had affirmed an Examiner's rejection of claims directed to a splice connector kit characterized by way of various components thereof that were recited as being "capable of being assembled" or "adapted to be" structurally or functionally interrelated with other recited components, as well as recitations of features having certain interrelationships "when", "then" and "whereby" certain events existed or occurred.

However, the CCPA reversed the Board of Appeals as it determined that the

> *"... claimed invention does include present structural limitations on each part, which structural limitations are defined by how the parts are to be interconnected in the final assembly, if assembled. However, this is not to say that there is anything futuristic or conditional in the 'kit' of parts itself"* (189 U.S.P.Q. at 151).

Again, the CCPA in Venezia explicitly ruled that such "adapted to" language, and the like, imparted a "structural limitation" to the claim. The CCPA also stated that:

> " ... *we find nothing wrong in defining the structures of the components of the completed connector assembly in terms of the interrelationship of the components, or the attributes they must possess, in the completed assembly*" (189 U.S.P.Q. at 152).

The CCPA did not stop there either. The CCPA also ruled that arguably "conditional" language of certain features

> *"being displaced ... when"* nonetheless *"... serves to precisely define present structural attributes of interrelated component parts of the 'kit', such that a later assembly of the "kit" of parts may be effected"* (189 U.S.P.Q. at 152).

Although the rejections under appeal in Venezia had been styled as being made under 35

U.S.C. §§ 112 and 101, and not §§ 102 or 103 *per se*, Appellants submit that the case nonetheless is controlling authority here because the real issue is identical:

> "Whether "adapted to" or "capable of", and the like claim language, concerning an intrinsic capability, function or structure of a recited feature, especially where it is made in reference to another claimed feature, is a positive limitation deserving patentable weight?"

The Court in Venezia unequivocally answered this above question in the affirmative.

In the Advisory Action, the Examiner disagreed with Appellants' position, indicating that Venezia concerned 35 U.S.C. §§ 101 and 112 issues regarding "capable of," not §§ 102 & 103 issues which [are] present in the application." Appellants submit that the Examiner rationale for maintaining the rejection in spite of clear legal precedent to the contrary is not cogent for at least the reasons set forth below.

First, Appellants are unaware of any section of 35 U.S.C. §§101, 102, 103, or 112, any rule in 37 C.F.R. §1.104 et cetera, or any guidance set forth in the Manual of Patent Examining Procedure (M.P.E.P.) directing, or even authorizing, the Examiner to review the pending claims of an application and striking out terms that the Examiner perceives to be lacking in patentable weight. While Appellants are aware that field of use limitations in the preamble of a claim and statement of results, i.e., whereby statements, are not accorded patentable weight under some circumstances, these statements do not appear in the body of the claim. Moreover, these preamble or result statements are not accorded patentable weight because of a failure to further limit other express limitations within the claim. Such is not the case here, where the "co-curable" limitation further defines other recitations within the body of the claim.

Second, the rationale set forth in the Advisory Action is contrary to law. Determination of whether a claim passes muster under 35 U.S.C. §§ 101, 102, 104, or 112 requires, at the onset, analysis of the claim. For example, when a "field of use" statement in the preamble doesnot operate to further limit the structure following the transition phrase, the field of use statement is not considered during any subsequent analysis of that claim, irrespective of the section being considered.

To do otherwise would permit examination of several forms of a pending claim, which form is determined based on the provision of the patent law being considered at that particular moment. As discussed in M.P.E.P. § 706, the Examiner adheres to the following procedure:

> After the application has been read and the claimed invention understood, a prior art search for the claimed invention is made. With the results of the prior art search, including any references provided by the applicant, the patent application should be reviewed and analyzed in conjunction with the state of the prior art to determine whether the claims define a useful, novel, nonobvious, and enabled invention that has been clearly described in the specification. The goal of examination is to clearly articulate any rejection early in the prosecution process so that the applicant has the opportunity to provide evidence of patentability and otherwise reply completely at the earliest opportunity. The examiner then reviews all the evidence, including arguments and evidence responsive to any rejection before issuing the next Office action. [Emphasis added by underlining.]

Third, denial of patentable weight to an express limitation of pending claim 1 is tantamount to applying a rule of thumb permitting the Examiner to excise stated limitations from the claim and then examine the residue. As the Court of Appeals of the Federal Circuit held in In re Ochiai,37 U.S.Q.P.2d 1127,33 (Fed. Cir. 1995):

> "The use of per se rules, while undoubtedly less laborious than a searching comparison of the claimed invention–including all its limitations–with the teachings of the prior art, flouts section 103 and the fundamental case law applying it. Per se rules that eliminate the need for fact-specific analysis of claims and prior art may be administratively convenient for PTO examiners and the Board. Indeed, they have been sanctioned by the Board as well. But reliance on per se rules of obviousness is legally incorrect and must cease. Any such administrative convenience is simply inconsistent with section 103, which, according to Graham and its progeny, entitles an applicant to issuance of an otherwise proper patent unless the PTO establishes that the invention as claimed in the application is obvious over cited prior art, based on the specific comparison of that prior art with claim limitations. We once again hold today that our precedents do not establish any per se rules of obviousness, just as those

> precedents themselves expressly declined to create such rules." [Emphasis added.]

Leaving aside the fact that the final Office Action rejects many of the pending claims under 35 U.S.C. §103(a), Appellants submit that while the Ochiai decision treats an obviousness rejection, the rationale is no less applicable to any other rejection based on a different section of the patent law, e.g., 35 U.S.C. § 102(b), since there are specific case law provisions detailing the minimum requirements of such rejections. For example, anticipation requires that all of the elements and limitations of the claim are found within a single prior art reference. There must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention. See Scripts Clinic v. Genentech, Inc., 18 U.S.P.Q.2d 1001, 10 (Fed. Cir. 1991). In ether case, the C.A.F.C. requires that all elements and limitations in a claim be considered. Any rule of thumb or Patent Office practice that permits less than all of the elements and limitations of a claim to be considered in rejecting a claim flies in the face of decided case law.

Fourth, and finally, the rationale set forth in the final Office Action is not understood. The Examiner reads the phrase "being co-curable" as "capable of being co-curable" and then concludes that this warrants a rejection under the Hutchison rationale, even though Hutchison turns on "adapted for" language in the preamble and in spite of the fact that the "capable of" language in the body of the claims was countenanced by the CCPA as providing additional limitations in Venezia .

For all of the reasons set forth above, Appellants submit that the each and every element and limitation present in pending claim 1 must be afforded, i.e., considered, in resolving any pending rejection of appealed claims 1-11 and 21-27.

CLAIMS 1-11 and 21-27 ARE NOT UNPATENTABLE UNDER 35 U.S.C. § 102(b)

Anticipation requires the presence in a single prior art disclosure of all elements of a claimed invention arranged as in the claim. See Connell v. Sears, Roebuck & Co., 220 U.S.P.Q. 193, 198 (Fed. Cir. 1983). Thus, an invention is anticipated if the same device, including all the claim limitations, is shown in a single prior art reference. Every element of the claimed invention must

be literally present, arranged as in the claim. The identical invention must be shown in as complete detail as is contained in the patent claim. Thus, a rejection for anticipation or lack of novelty requires, as the first step in the inquiry, that all the elements of the claimed invention be described in a single reference. Richardson v. Suzuki Motor Co., 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989), *cert. denied*, 110 S.Ct. 154 (1989). Further, the reference must describe the applicant's claimed invention sufficiently to have placed a person of ordinary skill in the field of the invention in possession of it. Akzo N.V. v. United States Int'l Trade Comm'n, 1 U.S.P.Q.2d 1241, 1245 (Fed. Cir. 1986), *cert. denied*, 482 U.S. 909 (1987); In re Coker, 175 U.S.P.Q. 26, 29 (C.C.P.A. 1972).

Independent Claim 1 recites:

A curable adhesive material, comprising

a thin film carrier layer supporting an ink pattern containing:

an electrically resistive or conductive material and

a curable resin,

wherein said thin film carrier layer comprises

a curable adhesive material in contact with said ink pattern,

and the curable adhesive material being co-curable with the curable resin.

It will be noted that the claim has been formatted to emphasize the various elements positively recited in the body of the claim. In other words, claim 1 positively recites an ink pattern containing an electrically resistive or conductive material and a curable resin, which ink pattern is supported by a curable adhesive material. It will also be noted that both the "curable resin" and the "curable adhesive material" are necessarily uncured at the time the curable adhesive material is formed; any other interpretation would avoid the clear intent of claim 1.

Appellants submit that the Final Office Action has not set forth a "prima facie" case of anticipation since the '705 patent to Callahan does not disclose or even suggest each and every limitation of claim 1, arranged as recited in claim 1. First, there is no disclosure within the four corners of the '705 patent of any ink pattern containing both an electrically resistive or conductive material and a curable resin; the '705 patent merely discusses conductive and resistive ink layers.

The '705 patent simply does to disclose or suggest that two part ink pattern as recited in claim 1. Moreover, the '705 patent does not disclose or even suggest that the recited ink pattern can be deposited on or supported by a curable adhesive material. The '705 patent merely lists materials suitable for disclosed materials. For example, column 5, lines 18-36 state that:

> The silk screening process can be printed on a variety of different substrates, including kapton or polyester, or even directly on the part, without a substrate, though in the preferred embodiment a quartz glass or S-glass substrate is employed. The substrate is generally of a one laminate thickness, with a polyamide resin. Any of these substrates require that the surfaces be clean before printing. The art work from the design process is then used to make a silk screen for printing the conductive layer. Once the conductive layer is printed, it is then cured by heat. After the cure, the resistive layer is printed covering the entire conductive layer and then cured. It should be noted that it is equally preferable to print the conductive layer over the resistive layer rather than the resistive layer over the conductive layer, as it makes no difference to the function of the resulting R-Card.

There is simply no disclosure within the four corners of the '705 patent of a thin film carrier including a ***curable*** adhesive material.

Thus, even assuming *arguendo* the express "co-curable" limitation need not be considered in determining patentability, Appellants submit that the '705 patent does not disclose, or even suggest, the remaining express limitations of claim 1. From the above and Appellants' previous arguments of record, it is apparent that the differences between the present claim 1 and Callahan '705 are substantial in nature and numerous in number. The dependent claims 8-11 distinguish Callahan '705 for at least the same reasons as their parent claim.

Turning to the 35 U.S.C. §102(b) rejection of claim 1 in view of U.S. Patent No. 4,321,404 to Williams et al., Appellants submit that the Final Office Action has completely misconstrued a reference taken from non-analogous art in rejecting claim 1. The '404 patent discloses an strongly adhering abhesive coating, i.e., a mold release coating that clings to the substrate on which it is formed. See Column 13, lines 38-47. The '404 patent discloses that one use for such a substrate is the transfer of xerographic images, i.e., carbon particles, to a transparent material having an adhesive layer. When employed in this application, a substrate covered with the radiation cured **abherent**

coating is imaged in a xerographic device to deposit a desired image. The deposited image is lifted from the substrate using a transparent material coated with an adhesive material which does not adhere to the **abherent** coating. In order words, the carbon black image is lifted off the **abherent** coating on the substrate by the adhesive on the transparent sheet. See column 13, line 64, through column 14, line 10.

Appellants respectfully submit that the '404 patent does not disclose or suggest "an ink pattern containing an electrically resistive or conductive material and a curable resin" as recited in claim 1. Appellants also submit that the '404 patent does not disclose or suggest the "thin film carrier layer comprises a curable adhesive material in contact with said ink pattern" as recited in claim 1. From the above, as well as Appellants' previous arguments (of record), it is apparent that the differences between the present claim 1 and the '404 patent are substantial in nature and numerous in number.

Turning now to the 35 U.S.C. §102(b) rejection of claims 1,2 and 4 in view of U.S. Patent No. 5,403,422 to Kawai et al., Appellants respectfully submit that the Final Office Action has failed to set forth a cogent rejection of the pending claims based on this reference. More specifically, since the '422 patent does not disclose a curable adhesive material supporting an ink pattern, the '422 patent cannot possibly anticipate the invention recited in pending claim 1.

The '404 patent discloses a method for producing decorative plates which includes the steps of:

(i) providing a transfer printing sheet which comprises

(a) a substrate film made from a synthetic resin,

(b) a releasing layer formed, optionally, on the substrate film,

(c) a pattern layer formed on the substrate film or on the releasing layer if it is provided, and

(d) an adhesive layer formed on the pattern layer,

(ii) superposing the transfer printing sheet on a base sheet,

(iii) hot-pressing the transfer printing sheet and the base sheet,

(iv) peeling the substrate film off the transfer printing sheet thereby to transfer the pattern layer onto the base sheet,

(v) impregnating the base sheet with a thermosetting resin, and

(vi) hot-pressing the resulting base sheet to harden the thermosetting resin to give a decorative plate.

See column 2, lines 43-58.

Independent claim 1 recites, in pertinent part, "a thin film carrier layer supporting an ink pattern . . . said thin film carrier layer comprises a curable adhesive material in contact with said ink pattern." In contrast, the '422 patent discloses an intermediate structure wherein an adhesive layer is supported by a pattern layer, which pattern layer is supported by a substrate film. As mentioned above, anticipation requires the presence in a single prior art disclosure of all elements of a claimed invention **arranged as in the claim**. See Connell v. Sears, Roebuck & Co., 220 U.S.P.Q. 193, 198 (Fed. Cir. 1983). Since the '422 patent does not disclose or suggest the arrangement specifically recited in claim 1, the '422 patent cannot provide the basis for a "prima facie" case of anticipation. Claims 2 and 4 are allowable over the '422 patent on similar reasoning.

CLAIMS 1-11 and 21-27 ARE NOT UNPATENTABLE UNDER 35 U.S.C. § 103(a)

Claims 3, 5-7, and 21-27 were rejected as being unpatentable under 35 U.S.C. §103(a) over Kawai et al. (U.S. Patent No. 5,403,422) in view of Pittman et al. (U.S. Patent No. 5,102,727). This rejection is respectfully traversed.

As discussed above, the '422 patent teaches away from the arrangement of elements specifically recited in independent claim 1 by teaching an adhesive layer supported by a printed layer. The secondary reference, i.e., the '727 patent, is cited for its teaching of electrically conductive textile fabric, which is woven or nonwoven and is similar to scrims (which are woven fabrics), (column 2, lines 14-5 1) and that the amount of woven and knitted fabrics can be varied as in thickness, (see abstract).

35 U.S.C. 103 authorizes a rejection where to meet the claim, it is necessary to modify a single reference or to combine it with one or more other references. After indicating that the rejection is under 35 U.S.C. 103, the examiner should set forth in the Office action (1) the relevant teachings of the prior art relied upon, preferably with reference to the relevant column or page number(s) and line number(s) where appropriate, (2) the difference or differences in the claim over the applied reference(s), (3) the proposed modification of the applied reference(s) necessary to arrive at the claimed subject matter, and (4) an explanation why such proposed modification would have been obvious to one of ordinary skill in the art at the time the invention was made. See M.P.E.P. §706.02(j).

The Final Office Action indicated that one of ordinary skill in the art would have been motivated to combine the teaching of the '422 patent with the teachings of the '727 patent because one would expect "that the screen ink printed film carrier would be improved regarding properties of flexibility as applied to surfaces of different substrates." This assertion is simply not cogent. One of ordinary skill in the art would have not have been motivated to combine the references in any way, since the teachings of the '727 patent would completely eliminate the necessity for a conductive printed layer, since the fabric layer taught by the '727 patent is already conductive. Thus, one of ordinary skill in the art would omit the printed layer and simply apply the adhesive layer taught by the '422 patent to the conductive fabric taught by the '727 patent, which would change the operation of the structure taught by the '422 patent. It is well settled that when the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious. See M.P.E.P. §2143, citing In re Ratti, 270 F.2d 810, 123 U.S.P.Q. 349 (CCPA 1959).

Assuming that the '422 patent teaches a screen ink printed film carrier instead of the building panel actually taught by the primary reference, one of ordinary skill in the art would recognize that the '422 patent and the '727 patent teach conflicting methods for providing a conducting layer. The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art, and all teachings in the prior art must be considered to the extent that they

are in analogous arts. Where the teachings of two or more prior art references conflict, the examiner must weigh the power of each reference to suggest solutions to one of ordinary skill in the art, considering the degree to which one reference might accurately discredit another. See M.P.E.P. § 2143, citing In re Young, 18 U.S.P.Q.2d 1089 (Fed. Cir. 1991). Since the Examiner fails to address, much less resolve, the conflict between the primary and secondary references, the Final Office Action cannot establish a "prima facie" case of obviousness with respect to claim 1.

For all of the reasons enumerated above, as well as the arguments of record, it is apparent that the differences between pending claim 1 and the proposed combination of references are substantial in nature and numerous in number. The dependent claims 3, 5-7, and 21-27 distinguish over the combination of the '442 patent and the '727 patent for at least the same reasons as their parent claim.

Finally, the Final Office Action rejected claims 8-11 under 35 U.S.C. §103(a) as being obvious over Kawai et al. (U.S. Patent No. 5,403,422) in view of Ruffoni (U.S. Patent No. 5,185,381) and Whyzmuzis (U.S. Patent No. 5,714,526).

As previously mentioned, the '422 patent teaches away from the arrangement of elements specifically recited in independent claim 1 by teaching an adhesive layer supported by a printed layer. The secondary reference, i.e., the '381 patent to Ruffoni, is cited, not for its teaching of an alternative arrangement, but for its teaching of conductive inks. The tertiary reference, i.e., the '526 patent, is cited as teaching magnetic inks. This rejection is respectfully traversed.

At the outset, it should be noted that one of ordinary skill in the art would not attempt to employ the teachings of the '526 patent, since both conductive and magnetic inks are disclosed in the '381 patent. Evidently, the Final Office Action did not appreciate that inks incorporating nickel exhibit magnetic properties. It is respectfully submitted that one of ordinary skill in the art would not have attempted to include the '526 patent in formulating the 35 U.S.C. §103(a) rejection of claims 8-11, had that one fully appreciated the teachings of the '381 patent.

Moreover, and in any event, Appellants again submit that there is no motivation for the proposed combination of references. The Final Office Action indicated that one of ordinary skill in the art would have been motivated to combine the teaching of the '422 patent with the teachings of

the '381 patent and the '526 patent because one would expect that "there would be an improved screen ink printed film carrier with sharper definition of the printing pattern on a substrate." This assertion is simply not cogent. First, there is simply no indication that either of the inks taught by the secondary and tertiary references affect the resolution of the printed pattern. In the '381 patent, the issue regarding resolution simply does not arise as the every square inch of the foam absorber is impregnated with the electromagnetic ink. In the 526 patent, the ink formulations are designed to be more environmentally friendly than conventional inks with, for example, a volatile solvent base; there is simply no teaching within the four corners of the '526 patent asserting improved resolution of printed mater stemming from the use of the inks taught by that patent. It is respectfully submitted that the asserted "motivation" is nothing more than an assertion that the combination is well with the skill level of one of ordinary skill in the art. It is well settled that this cannot be the necessary motivation for combining references under Section 103. A statement that modifications of the prior art to meet the claimed invention would have been " `well within the ordinary skill of the art at the time the claimed invention was made' " because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a prima facie case of obviousness without some objective reason to combine the teachings of the references. See M.P.E.P. § 2143, citing Ex parte Levengood, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993).

Secondly, one of ordinary skill in the art would have not have been motivated to combine the references in any way, since the teachings of the '381 patent to Ruffoni would completely eliminate the necessity for a conductive or magnetic printed layer, i.e., the ink impregnated foam taught by the '381 patent is already conductive and may be magnetic.

Moreover, given the teaching of the '381 patent, one of ordinary skill in the art would have been motivated to omit the printed layer taught by the '442 patent and simply apply the adhesive layer taught by the '422 patent to the conductive foam taught by the '381 patent, which would change the operation of the structure taught by the '422 patent. It is well settled that when the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render

the claims prima facie obvious. See M.P.E.P. §2143, citing In re Ratti, 270 F.2d 810, 123 U.S.P.Q. 349 (CCPA 1959).

Assuming that the '422 patent teaches a screen ink printed film carrier [instead of the building panel actually taught by the primary reference], one of ordinary skill in the art would recognize that the '422 patent and the '381 patent teach conflicting methods for providing a conducting layer. The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art, and all teachings in the prior art must be considered to the extent that they are in analogous arts. Where the teachings of two or more prior art references conflict, the examiner must weigh the power of each reference to suggest solutions to one of ordinary skill in the art, considering the degree to which one reference might accurately discredit another. See M.P.E.P. § 2143, citing In re Young, 18 U.S.P.Q.2d 1089 (Fed. Cir. 1991). Since the Examiner fails to address, much less resolve, the conflict between the primary and secondary references, the Final Office Action cannot establish a "prima facie" case of obviousness with respect to claim 1.

For all of the arguments set forth above, as well as the arguments already of record, it is apparent that the differences between the present claim 1 and proposed combination of references are substantial in nature and numerous in number. The dependent claims 8-11 distinguish over the proposed combination of references for at least the same reasons as their parent claim.

SUMMARY

In summary, then, Appellant's respectfully requests that the Board reverse the rejection of all the appealed claims and to find each of these claims allowable for defining subject matter which would not have been either anticipate or obvious at the time such subject matter was invented.

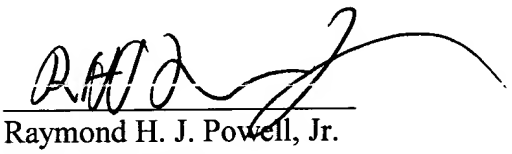
This Brief is being submitted in triplicate. The U.S. Patent and Trademark Office is authorize to charge the requisite Brief fee to our Deposit Account No. 16-2372 by the accompanying transmittal letter.

Note: For convenience of detachment without disturbing the integrity of a remainder of pages of this Appeal Brief, Appellant's "APPENDIX A" section

is contained on separate appendix sheets following a signatory portion of this Appeal Brief.

Appellants will delay the final decision on oral argument until after review of the Examiner's Answer.

Respectfully Submitted,



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Appendices:

(A) Appendix Containing Pending Claims 1-11 AND 21-27
(B) List of Search Results From the U.S. Patent and Trademark Office Web Site
(C) U.S. Patent No. 6,127,447
(D) In re Venezia, 189 U.S.P.Q. 149 (CCPA 1976)In re Venezia, 189 U.S.P.Q. 149 (CCPA 1976)

Filed: July 21, 2001

APPENDIX A

1. A screen ink printed film carrier, comprising a thin film carrier layer supporting an ink pattern containing an electrically resistive or conductive material and a curable resin, wherein said thin film carrier layer comprises a curable adhesive material in contact with said ink pattern, and the curable adhesive material being co-curable with the curable resin.

2. The screen ink printed film carrier of claim 1, wherein said thin film carrier layer comprises a fibrous sublayer and a continuous surface layer attached to said fibrous sublayer, said continuous surface layer comprising a thermosetting resin.

3. The screen ink printed film carrier of claim 2, wherein said fibrous sublayer is a textile material selected from the group consisting of a woven layer, a knit layer, a scrim layer, and a nonwoven layer.

4. The screen ink printed film carrier of claim 2, wherein said fibrous sublayer is a woven polyester.

5. The screen ink printed film carrier of claim 2, wherein said fibrous sublayer is selected from the group consisting of a polyester scrim and a nylon scrim.

6. The screen ink printed film carrier of claim 2, wherein said thin film carrier has an overall thickness of about 3 to about 25 mils.

7. The screen ink printed film carrier of claim 2, wherein said thermosetting resin contained in said continuous surface layer is selected from the group consisting of an epoxy compound, a cyanate ester compound, and a phenolic compound.

8. The screen ink printed film carrier of claim 1, wherein said curable resin contained in said ink pattern comprises a thermosetting resin selected from the group consisting of phenolic, phenolic/epoxy mixtures, and polyimide.

9. The screen ink printed film carrier of claim 1, wherein said ink pattern is a hexagonal shaped pattern.

10. The screen ink printed film carrier of claim 1, wherein said ink pattern contains a conductive material selected from the group consisting of silver, nickel, copper, platinum, and palladium.

11. The screen ink printed film carrier of claim 1, wherein said ink pattern contains a magnetic material selected from the group consisting of iron and ferrites.

21. The screen ink printed film carrier of claim 2, wherein the fibrous sublayer has a thickness of about 125 to 380 μm, and the continuous surface layer has a thickness of about 25 to 250 μm.

22. The screen ink printed film carrier of claim 2, wherein the thermosetting resin of the continuous surface layer comprises a B-stage resin.

23. The screen ink printed film carrier of claim 22, wherein the thermosetting resin comprises an epoxy resin.

24. The screen ink printed film carrier of claim 1, wherein the screen ink printed film carrier has an overall density of about 0.05 to 0.1 lb/ft^3.

25. The screen ink printed film carrier of claim 1, wherein the ink pattern maintains a resolution of 1-2 mm after curing of the screen ink printed film carrier.

26. The screen ink printed film carrier of claim 22, wherein the thermosetting resin comprises an epoxy resin, the ink pattern maintains a resolution of 1-2 mm after curing of the screen ink printed film carrier, and the screen ink printed film carrier has an overall density of about 0.05 to 0.1 lb/ft^3.

27. The screen ink printed film carrier of claim 2, wherein the ink pattern comprises silver particles and a curable thermosetting resin.